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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,171	10/28/2003	Hajime Nakao	Q78168	2745

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EXAMINER
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LEE, RIP A

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/694,171

Applicant(s)

NAKAO, HAJIME

Examiner

Rip A. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10-28-2003</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Objections*

1. Claim 1 is objected to because of the following informalities: The word "type" is a relative term which does not qualify the term "positive resist" in a useful fashion, and it may be deleted. See MPEP § 273.05(b).

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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4. Claims 1-5 and 8-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe *et al.* (U.S. 6,818,148).

Watanabe *et al.* teaches a resist composition comprising an alicyclic structure (resist composition E), perfluorobutane sulfonate photoacid generator, fluorosurfactant, and basic nitrogen compound. The composition does not comprise an alkoxy alcohol solvent, however, one of ordinary skill in the art would have found it obvious to arrive at the subject matter of the instant claims because the inventors indicate that alkoxy alcohols such as 3-methoxy-butanol, and 3-methyl-3-methoxy-butanol are useful solvents for preparing resist compositions (col. 3, lines 56-58). Since use of these type of solvent are contemplated and disclosed adequately in the patent, one skilled in the art would have found it obvious to use them as solvents for the compositions of disclosed in the text, and one would have expected such an embodiment to produce a useful resist composition. One of ordinary skill in the art would have found it obvious to use a combination of solvents (col. 3, line 67; resist composition D), and from the examples shown in Tables 1-4, it would have been obvious to use propylene glycol monomethyl ether acetate since this is shown to be a general solvent for preparing resist compositions. It would have been obvious to one having ordinary skill in the art to arrive at the solvent ratio prescribed in claim 3 of the present invention since it has been deemed that the discovery of optimum values of result-effective variables in a known process is within the level of ordinary skill in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). That is, one of ordinary skill in the art would have found it obvious to optimize the solvent ratio in order to obtain solubility of the resin in the solvent. One of ordinary also would have found it obvious to arrive at the photoacid generator of present claim 8 because this is a known photoacid generator, and in light of the fact that the patent shows use of perfluorobutane sulfonate (resin composition E).

5. Claims 1-3, 5, 6, 9, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanigawa *et al.* (WO 00/58252, equivalent document U.S. 6,610,638 relied upon for translation).

Tanigawa *et al.* discloses use of a 50:50 ratio of 1,3-propandiol methyl ether (3-methoxy-1-propanol) and propandiol methyl ether acetate as solvent in preparation of a resist comprising a resin derived from monohydroxyadamantyl acrylate and THP methacrylate (Example IV-14). The experiment shows that the 3-alkoxy 1-alcohol is a useful solvent for preparation of thin films of this polymer. The composition of this example does not contain photoacid generator, but one of ordinary skill in the art would have found it obvious to use a photoacid generator especially in light of the fact that the inventors indicate that this material is used for preparing positive resists (col. 35, line 48 – col. 36, line 21) and in view of the fact that a series of photoacid generator useful for such a purpose are listed clearly in column 19. One of ordinary skill in the art also would have found it obvious to use propylene glycol monomethyl ether acetate as co-solvent because this solvent is recommended due to its miscibility with the polymer resin (col. 15, lines 1-6, col. 16, lines 60-67, col. 17, lines 1-6, and col. 21, lines 29-32). It would have been obvious to one having ordinary skill in the art to arrive at the solvent ratio prescribed in claim 3 of the present invention since it has been deemed that the discovery of optimum values of result-effective variables in a known process is within the level of ordinary skill in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). That is, one of ordinary skill in the art would have found it obvious to optimize the solvent ratio in order to obtain solubility of the resin in the solvent.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanigawa *et al.* in view of Fujimori *et al.* (U.S. 6,692,897).

The discussion of the disclosures of the prior art from the previous paragraph of this office action is incorporated here by reference. Tanigawa *et al.* does not teach use of other adamantyl acrylate resins for preparation of photoresist compositions. Fujimori *et al.* teaches preparation of a series of resins for making photoresists comprised of mono-alicyclic and polyalicyclic structures (see examples 20-80). Particularly useful resins contain an adamantyl group having at least one hydroxyl group (example A-II; same as that shown in instant claim 6)

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and 2-alkyladamantyl groups (col. 15 and 19). One of ordinary skill in the art would have found it obvious to use solvent such as 1,3-propandiol methyl ether described Tanigawa *et al.* for the resins shown in Fujimori *et al.* because the prior art shows that 3-alkoxy 1-alcohols are useful in making thin films of this general series of polymer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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September 12, 2005



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